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SELECTED TABLES BASED ON
A STUDY OF WEIGHTS AND MEASURES ADMINISTRATION

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Table 1 - Proportion of States, cities, and counties, having legal provisions conforming to the model weights and measures law and proportion not having such provisions, by type of regulation

(Based on 22 States, 49 cities, and 20 counties)

Type of regulation or enforcement activity 1/	Proportion of juris- dictions conforming		Proportion of juris- dictions not conforming			
	to model law in -		to model law in -			
	States : Cities : Counties :	States : Cities : Counties :	States : Cities : Counties :	States : Cities : Counties :		
	(1) :	(2) :	(3) :	(4) :	(5) :	(6) :
	Percent :	Percent :	Percent :	Percent :	Percent :	Percent :
1 Testing commercial devices twice a year	27.3	53.1	60.0	68.2	42.9	30.0
2 Proving of standards every five years	40.9	83.7	85.0	40.9	12.2	10.0
3 Inspection of standards every two years	59.1	65.3	50.0	22.7	28.6	40.0
4 Issuance of regulations for law enforcement	86.4	75.5	80.0	9.1	14.3	10.0
5 Inspection of new equipment	54.5	87.8	65.0	40.9	8.2	35.0
6 Stamping or sealing of approved equipment	77.3	98.0	95.0	13.6	2.0	5.0
7 Condemnation and seizure of unapproved equipment	95.5	98.0	95.0	0.0	0.0	5.0
8 Arresting violators	86.4	89.8	80.0	9.1	8.2	15.0
9 Penalty for first offense	31.8	22.4	35.0	63.6	67.3	55.0
10 Penalty for repeated offenses	27.3	22.4	35.0	63.6	61.2	55.0
11 Labeling packages with net weight	81.8	91.8	95.0	18.2	6.1	5.0
12 Prohibition of use of misleading containers	45.5	69.4	85.0	50.0	20.4	10.0
13 Requiring weight tickets for coal, coke, and charcoal:	68.2	91.8	90.0	27.3	8.2	10.0
Standard units for:						
14 Bread	45.5	57.1	45.0	54.5	38.8	45.0
15 Butter and oleomargarine	50.0	61.2	85.0	50.0	28.6	15.0
16 Milk	81.8	81.6	90.0	13.6	14.3	10.0
17 Coal	86.4	81.6	95.0	9.1	12.2	5.0
18 Wood	68.2	73.5	85.0	27.3	24.5	15.0
19 Berries and small fruits	90.9	91.8	95.0	4.5	6.1	0.0
20 Vegetables and fruits (except cranberries)	59.1	67.3	70.0	27.3	14.3	25.0
21 Support of department by taxation	77.3	79.6	100.0	22.7	18.4	0.0
22 Bonding of administrative officers	54.5	49.0	55.0	36.4	46.9	45.0
23 Employment of inspectors from Civil Service lists	18.2	57.1	35.0	81.8	36.7	60.0
24 Discharge of personnel	36.4	69.4	50.0	63.6	22.4	40.0

1/ These are condensed statements of the type of regulation or enforcement activities; see model weights and measures law for more comprehensive statements of the requirements. The model law may be found on pages 237-258 of Weights and Measures Administration, Handbook Series of the National Bureau of Standards, No. 11, 1927.

Table 2 - Average budget for weights and measures activities in 1 year, as determined for designated number of States, cities, and counties, by population

Population	Average budget for -			Range of budget for -			Number of -		
	States : Cities : Counties :			States : Cities : Counties :			States : Cities : Counties :		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dollars:	Dollars:	Dollars:	Dollars	Dollars	Dollars			
1 Under 20,000:									
2 20,000-29,999:		1,200:						1	
3 30,000-39,999:			1,026			400-2,300:			7
4 40,000-49,999:			2,460		0-1,512:	1,850-3,200:		2	8
5 50,000-99,999:		3,133:	1,982		2,179-5,108:	0-3,945:		7	10
6 100,000-149,999:		2,959:	2,409		0-14,200:	0-6,347:		19	12
7 150,000-199,999:		5,276:	6,262		1,700-10,283:	0-11,551:		9	6
8 200,000-249,999:		7,120:	7,208		2,466-14,825:	1,500-12,602:		5	4
9 250,000-499,999:		14,684:	5,806		4,010-26,180:	2,250-14,875:		4	4
10 500,000-999,999:	16,500	14,595:	5,931	8,500-31,000:	2,100-34,580:	2,220-13,590:	3	13	7
11 1,000,000-1,999,999:	15,908	28,872:	31,320	8,940-29,436:	10,500-50,171:	21,865-40,775:	4	5	2
12 2,000,000-2,999,999:		21,500:	29,480					1	1
13 3,000,000 or above:	14,333	48,000:	80,524	0-25,000:			3	1	1
	45,774	186,160:		21,000-64,000:			5	1	
14 Average	25,667	11,948:	6,845						
15 Total							15	68	62

The averages in columns (1), (2), and (3) show that in general the budgets for weights and measures activities in jurisdictions of medium or large population exceeded the budgets for those of small population. Individual exceptions to this main tendency were found, however. There was a wide spread or range of the budgets for the jurisdictions in a population class as is evident from columns (4), (5), and (6).

Table 3 - Average size of staff, as determined for weights and measures agencies in designated number of States, cities, and counties, by population

Population	Average number of persons on staff for -			Range of staff for -			Number of -		
	States (1)	Cities (2)	Counties (3)	States (4)	Cities (5)	Counties (6)	States (7)	Cities (8)	Counties (9)
1 Under 20,000	:	2.0	1.0	:	:	:	:	1	1
2 20,000-	:	:	1.1	:	:	0 - 2	:	:	7
3 30,000-	:	1.7	1.6	:	1 - 2	1 - 2	:	3	8
4 40,000-	:	1.6	1.6	:	1 - 2	1 - 3	:	7	10
5 50,000-	:	2.1	1.8	:	1 - 6	1 - 4	:	21	13
6 100,000-	:	2.4	3.2	:	1 - 6	1 - 5	:	11	6
7 150,000-	:	4.2	3.0	:	2 - 7	1 - 5	:	6	5
8 200,000-	:	7.0	2.8	:	3 - 10	1 - 5	:	4	4
9 250,000-	4.0	6.1	3.1	3 - 5	2 - 12	1 - 5	3	15	7
10 500,000-	5.2	13.2	10.3	4 - 7	7 - 20	7 - 14	4	5	2
11 1,000,000-1,999,999	7.0	12.0	12.0	6 - 8	:	:	2	1	1
12 2,000,000-2,999,999	9.7	16.0	39.0	4 - 17	:	:	3	1	1
13 3,000,000 or above	16.0	65.5	:	3 - 31	46 - 85	:	8	2	:
14 Average	10.2	5.9	3.1	:	:	:	:	:	:
15 Total	:	:	:	:	:	:	20	77	65

In general the larger the population of a State, city, or county the larger was the number of persons engaged in weights and measures supervision, which tendency is indicated by the averages in columns (1), (2), and (3). The ranges in columns (4), (5), and (6) suggest small staffs, as a rule. For cities or counties staffs of 3 persons or less were in the majority, and for States staffs of 7 persons or less.

Table 4 - Summary of results of weights and measures testing activities in 1 year, by type of apparatus

(States, cities, and counties combined)

Type of apparatus	Number of States, cities, and counties represented ^{2/}	Total number examined ^{2/}	Proportion per jurisdiction ^{1/}					
			Approved :		Condemned :		Confiscated	
			without adjusting :	after adjusting :	for repair :	destroyed		
	(1)	(2)	(3)	(4)	(5)	(6)		
	Units	Percent	Percent	Percent	Percent	Percent		
1 Scales	70	913,628:	83.2	9.1	7.0	.7		
2 Weights	63	974,113:	95.0	2.0	1.2	1.8		
3 Pumps and retail-type meters	72	530,511:	83.6	7.6	8.4	.4		
4 Miscellaneous	67	25,807,063:	94.4	1.7	2.8	1.1		

^{1/} Sum of proportions for all jurisdictions divided by total number of jurisdictions, expressed as percentage; each percentage in columns (3), (4), (5), and (6) is therefore an average.
^{2/} Subject to revision.

Weights and miscellaneous apparatus required less adjustment than scales, and pumps and retail-type meters. From the standpoints of adjustment and condemnation for repairs, scales, and retail-type meters required more attention. Confiscations in no instance averaged as high as 2 percent.

Table 5 - Miscellaneous apparatus: Summary of results of weights and measures testing activities in 1 year, by class

(States, cities, and counties combined)

Class	Number of States, cities, and counties represented 2/ (1)	Total number examined 2/ (2)	Proportion per jurisdiction 1/					
			Approved without adjusting (3)	Approved after adjusting (4)	Condemned for repair (5)	Confiscated and destroyed (6)		
			Percent	Percent	Percent	Percent		
Units								
1 Liquid capacity measures	63	696,410	94.1	1.5	2.8	1.6		
2 Milk bottles	24	22,583,294	99.2	-	-	.8		
3 Lubricating oil bottles	41	1,127,372	99.1	.1	.2	.6		
4 Dry capacity measures	40	1,256,725	93.7	-	2.2	4.1		
5 Linear measures	48	44,284	93.1	.5	3.5	2.9		
6 Fabric measuring devices	35	2,586	96.2	.9	2.9	-		
7 Taximeters	13	6,486	96.2	.9	2.9	-		
8 Calibrated vehicle tanks (fuel oil and gasoline)	67	9,178	83.4	13.3	3.2	.1		
9 Fuel oil meters	37	6,195	83.6	11.4	5.0	-		
10 Wholesale-type gasoline meters	46	7,399	78.6	12.6	7.8	1.0		
11 Gas meters (not gasoline)	3	670	90.0	5.5	4.5	-		
12 Electricity meters	1	38	81.6	-	18.4	-		
1/ See footnote 1, table 4.								
2/ See footnote 2, table 4.								

In 8 of the 12 classes of apparatus, the average proportion approved without adjusting amounted to 90 percent or more. Officials approved nearly all milk bottles and lubricating oil bottles tested. The average was lowest (78.6) for wholesale-type gasoline meters. More than 15 percent of the equipment tested of calibrated vehicle tanks, fuel oil meters, and wholesale-type gasoline meters, required adjustment or repair.

Table 6 - Jurisdictions classified by proportion of weights and measures apparatus of each specified type approved after testing

STATES											
Type of apparatus	Number of jurisdictions represented (1)	Number of jurisdictions in which approved units of apparatus aggregated -								Number in: which all: apparatus: approved: (7) (8)	
		50 percent: or more (2)		60 percent: or more (3)		70 percent: or more (4)		80 percent: or more (5)		90 percent: or more (6)	
		States	States	States	States	States	States	States	States	States	States
		Cities	Cities	Cities	Cities	Cities	Cities	Cities	Cities	Cities	Cities
1 Scales	18		18		18		16		12	1	
2 Weights	15		14		14		14		13	12	
3 Pumps and retail-type meters	19		18		18		18		12	5	
4 Miscellaneous	17		17		17		16		14	14	
CITIES											
5 Scales	63		60		58		50		41	18	1
6 Weights	56		56		56		56		55	53	
7 Pumps and retail-type meters	63		59		59		54		41	27	2
8 Miscellaneous	60		60		59		58		55	54	
COUNTIES											
9 Scales	59		59		53		46		36	20	
10 Weights	57		57		57		57		57	55	8
11 Pumps and retail-type meters	60		59		56		55		48	30	1
12 Miscellaneous	61		58		58		58		57	55	16

Table 6 - continued (2)

1/ The total number of States, cities, or counties, represented in the information in this column for any one type of apparatus, would not equal the corresponding total stated in column (1), table 4. Data from city and county offices apparently were incorporated in some instances in reports from State officials.

Of the weights and measures apparatus tested, at least 80 percent was found to be satisfactory in about two-thirds of the jurisdictions. The percent approved was ordinarily higher for weights and miscellaneous apparatus than for scales and pumps, frequently running to 90 percent, sometimes to nearly 100 percent.

Table 7 - Jurisdictions classified by proportion of weights and measures apparatus of each specified type found unsatisfactory on testing, with official action taken

STATES

		Number of jurisdictions in which units of apparatus designated for -													
		Number of jurisdictions represented		Adjustment aggregated -		Repair aggregated -		Confiscation and destruction aggregated							
		1/		10 percent : 20 percent : 2/ or more 2/		10 percent : 20 percent : 2/ or more 2/		1 percent : 5 percent : or more 2/ or more 2/							
		(1)		(2)		(3)		(4)		(5)		(6)		(7)	
		States		States		States		States		States		States		States	
1	Scales	18		10		1		4		1		5		1	
2	Weights	15		1		1		1		1		8		1	
3	Pumps and retail-type meters	19		5		1		6		3		3		1	
4	Miscellaneous	17		2		2		2		1		5		1	

CITIES

	Cities	Cities	Cities	Cities	Cities	Cities	Cities	Cities
5 Scales	63	28	12	17	5	21	4	
6 Weights	56	1	-	-	-	26	5	
7 Pumps and retail-type meters	63	19	6	22	10	6	2	
8 Miscellaneous	60	5	3	1	-	23	6	

COUNTIES

	Counties	Counties	Counties	Counties	Counties	Counties	Counties	Counties
9 Scales	59	29	16	11	3	17	3	
10 Weights	57	1	-	-	-	24	4	
11 Pumps and retail-type meters	60	15	8	21	5	6	2	
12 Miscellaneous	61	4	2	1	1	16	4	

Table 7 - continued (2)

1/ See footnote 1, table 6.

2/ Maximum percentages, all three classes of jurisdiction:

Type of apparatus:	: Adjustment : : columns (2), (3):	: Repair : : columns (4), (5):	: Confiscation and : destruction : columns (6), (7)
	: Percent	: Percent	: Percent
Scales	: 96	: 36	: 9
Weights	: 93	: 20	: 23
Pumps and retail--	: :	: :	: :
type meters	: 93	: 41	: 9
Miscellaneous	: 100	: 96	: 29

The number of weights confiscated was relatively greater than the number of units of any other type of equipment. Adjustments were most frequently reported for scales while pumps and retail-type meters were in the lead from the standpoint of condemnations for repair.

Table 8 - Coal, bread, commodity packages: Distribution of States, cities, and counties according to the percentage of the total quantity found short in weight by inspecting officials

COIL

	Percent short in weight	Number of -		
		States (1)	Cities (2)	Counties (3)
1	0	:	8	12
2	0 - 9 <u>1/</u>	3	35	24
3	10 - 19	3	12	6
4	20 - 29	1	6	1
5	30 - 39	:	4	2
6	40 - 49	:	:	1
7	50 or over	:	4	2
8	Total	7	61	36

BREAD

9	0	:	9	11
10	0 - 9 <u>1/</u>	5	28	24
11	10 - 19	2	13	5
12	20 - 29	:	4	2
13	30 - 39	:	3	2
14	40 - 49	:	2	:
15	50 or over	:	:	:
16	Total	7	50	33

COMMODITY PACKAGES

17	0	:	4	:
18	0 - 9 <u>1/</u>	7	37	35
19	10 - 19	3	14	6
20	20 - 29	1	5	5
21	30 - 39	:	4	4
22	40 - 49	:	1	:
23	50 or over	:	3	1
24	Total	11	64	51

1/ Includes 0 class.

In general less than 10 percent of the quantity of coal, bread, or commodity packages, weighed by inspecting officials, was found short in weight; many of the reports, however, disclosed larger proportions. On the whole, the proportions for cities exceeded those for States or counties.

Table 9 - Comparison of 3 selected cities with respect to weights and measures activities

(Population group 300,000 to 400,000)

Item	:City A	:City B	:City C
Staff:			
Number of weights and measures inspectors.....1..	1:	3:	2
Number of persons on administrative staff.....	7:	2:	1
Total staff.....	8:	5:	3
Budget:			
Budget furnished.....	\$18,000:	\$12,500:	\$5,941
Fees collected but not segregated for use	:	:	:
by Department.....	:	2,394:	\$ 362
Budget needed.....	\$18,000:	\$19,160:	\$9,000
Testing activities:			
Number of establishments within jurisdiction.....	3,600 :	4,500:	4,000
Number of establishments visited.....	3,600 :	3,500:	3,000
Number of visits made.....	7,200 :	8,000:	3,778
Testing apparatus:			
Scales-number examined.....	\$11,256:	4,129:	796
percent approved without adjusting.....	98.2:	49.4:	64.2
percent approved after adjusting.....	0:	34.1:	0
percent condemned for repair.....	.8:	15.5:	35.8
percent confiscated and destroyed.....	.4:	1.0:	0
Weights-number examined.....	17,288:	1,679:	4,393
percent approved without adjusting.....	92.6:	86.0:	98.82
percent approved after adjusting.....	0:	13.2:	0
percent condemned for repair.....	0:	.8:	.02
percent confiscated and destroyed.....	7.4:	0:	1.16
Pumps and retail-type meters-number examined.....	6,361:	2,447:	2,609
percent approved without adjusting.....	99.9:	78.8:	78.7
percent approved after adjusting.....	0:	.3:	0
percent condemned for repair.....	.1:	20.9:	21.3
percent confiscated and destroyed.....	0:	0:	0
Liquid capacity measures-number examined.....	5,170:	1,849:	470
percent approved without adjusting.....	99.9:	80.3:	98.9
percent approved after adjusting.....	0:	12.0:	0
percent condemned for repair.....	0:	7.7:	0
percent confiscated and destroyed.....	.1:	0:	1.1
Total miscellaneous apparatus <u>1/</u> -number examined.....	17,973:	2,083:	7,025
percent approved without adjusting.....	99.8:	71.2:	99.6
percent approved after adjusting.....	0:	21.9:	0
percent condemned for repair.....	.1:	6.9:	.3
percent confiscated and destroyed.....	.1:	0:	.1
Supervisory activities:			
Coal - loads weighed under supervision.....	36:	0:	100
percent found short weight.....	2.8:	- :	10.0
Bread - loaves weighed under supervision.....	600:	3,800:	1,000
percent found short weight.....	5.0:	21.1:	0
Commodity packages - number weighed under supervision..	2,801:	3,882:	39,619
percent found short weight.....	4.7:	39.5:	13.8
Prosecution activities:			
Prosecutions made.....	.2:	27:	6
Total amount of fines imposed..... <u>2/</u>	:	\$470:	\$85
Number of jail sentences.....	0:	0:	0
Are penalties adequate?.....	Yes	No	No

1/ Includes liquid capacity measures.

2/ 1 fine imposed.

